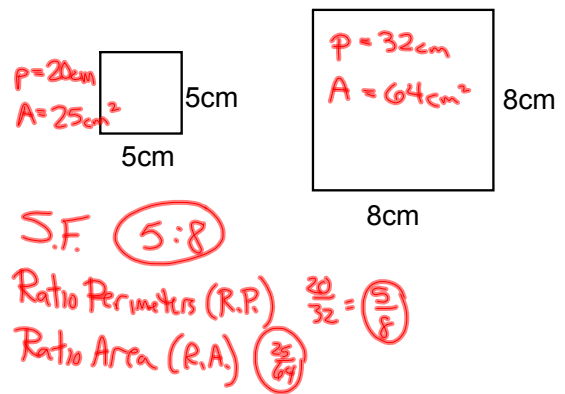


11.3 Perimeter and Area of Similar Figures



Theorem 11.7 Area of Similar Polygons

If 2 polygons are similar with the lengths of corresponding sides in the ratio of $a:b$, then the ratio of their areas is $a^2:b^2$.

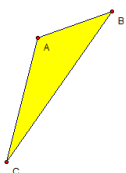
The scale factor of 2 similar rectangles is 9:5.

What is the ratio of the perimeters? $9:5$

What is the ratio of the areas? $81:25$

If the area of the 1st rectangle is 42cm^2 , what is the area of the 2nd rectangle?

$$\frac{81}{25} = \frac{42}{A} \quad A \approx 13.0\text{cm}^2$$



$$\triangle ABC \sim \triangle YZX$$

$$AC = 8\text{cm}$$

$$YX = ?$$

$$\text{Area } \triangle ABC = 32\text{ cm}^2$$

$$\text{Area } \triangle YZX = 8\text{ cm}^2$$

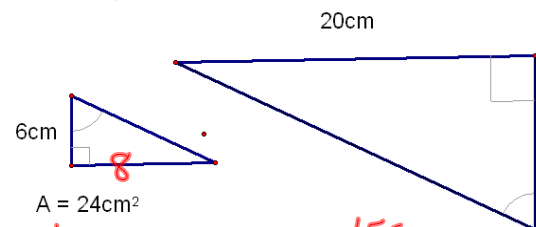
$$\frac{2}{1} = \frac{8}{YX}$$

$$4\text{cm} = YX$$

$$\text{R.A. } \sqrt{4:1}$$

$$\text{S.F. } 2:1$$

Are the triangles similar?



$$24 = \frac{1}{2} 6b$$

$$8 = b$$

$$\text{S.F. } \frac{8}{20}$$

$$\text{S.F. } \frac{2}{5}$$

$$A = 150\text{cm}^2$$

$$\frac{4}{25} = \frac{24}{A}$$

11.4 Circumference and Arc Length

$$\pi = \frac{C}{d}$$

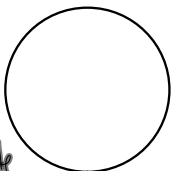
$$C = 2\pi r$$

$$C = \pi d$$

$$r = 7\text{cm}$$

$$C = 14\pi \text{ cm} \quad \text{Exact}$$

$$\approx 43.98 \text{ cm} \quad \text{Approximate}$$

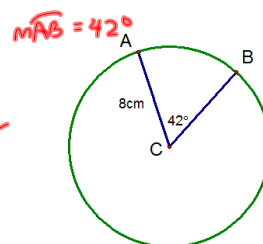


$$\text{Arc Length} = \frac{\text{Angle}}{360^\circ} \cdot 2\pi r$$

$$\widehat{AB} = \frac{42}{360} 16\pi$$

$$= \frac{28\pi}{15} \text{ cm}$$

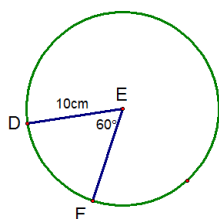
$$\approx 5.86 \text{ cm}$$



$$\text{Arc Length} = \frac{\text{Angle}}{360^\circ} \cdot 2\pi r$$

$$\widehat{DF} = \frac{10\pi}{3} \text{ cm}$$

$$\approx 10.47 \text{ cm}$$



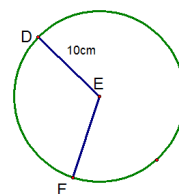
$$\widehat{DF} = 20.2 \text{ cm}$$

$$m\widehat{DF} = \underline{\hspace{1cm}}$$

$$20.2 = \frac{x}{360} 20\pi$$

$$7272 = x \cdot 20\pi$$

$$115.74^\circ \approx x$$



HW

p740-741

#s 5-7, 13, 23

p750-751

#s 11, 12, 17-25